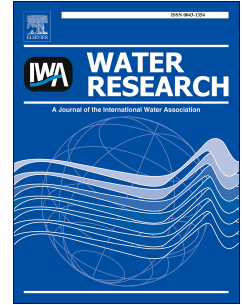


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Development of a mobile groundwater desalination system for communities in rural India

Qiyuan Li, Boyue Lian, Yuan Wang, Robert A. Taylor, Michelle Dong, Tracey Lloyd, Xuefei Liu, Joel Tan, Md Mahfuz Ashraf, Divyang Waghela, Gregory Leslie



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1 Development of a Mobile Groundwater Desalination System for Communities in Rural India

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### 13 **Abstract**

14 The consumption of saline groundwater has contributed to a growing incidence of renal diseases,  
15 particularly in coastal communities of India. Although reverse osmosis (RO) is routinely used to  
16 remove salt from groundwater, conventional RO systems (i.e. centralized systems using spiral wound  
17 RO elements) have limited utility in these communities due to high capital and maintenances costs,  
18 and lack of infrastructure to distribute the water. Consequently, there is a need to develop an  
19 appropriate solution for groundwater treatment based on small-scale, mobile and community-led  
20 systems.

21 In this work, we designed a *mobile* desalination system to provide a simple platform for water  
22 treatment and delivery of goods to rural communities. The system employs tubular RO membranes  
23 packed in a single, low-profile vessel which fits below the cargo space. The low-profile enables  
24 minimal intrusion on the space available for the transportation of goods. Pressure is delivered by a

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